



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/843,765	04/30/2001	Akihiro Sanda	Q63763	9192

7590

03/15/2005

SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC  
2100 Pennsylvania Avenue, N.W.  
Washington, DC 20037-3213

EXAMINER
----------

PRONE, JASON D

ART UNIT	PAPER NUMBER
----------	--------------

3724

DATE MAILED: 03/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/843,765

Applicant(s)

SANDA ET AL.

Examiner

Jason Prone

Art Unit

3724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 09 December 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.  
4a) Of the above claim(s) 8-14 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-7 and 15-18 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Potsch et al. (3,788,180).

Potsch et al. discloses the same invention including a drum-shaped rotary blade (53), a disk shaped rotary blade (68), that the rotary blade has a cutting edge (Fig. 9), a first beveled surface facing the drum-shaped rotary blade and progressively spaced from the drum-shaped rotary blade toward the cutting edge (68'), a second beveled surface facing the work piece and progressively spaced from the cutting edge away from the work piece (200), a means for rotating the drum-shaped blade in unison with the disk-shaped blade (Fig. 3 and Fig. 7), that the drum-shaped rotary blade is disposed on a drum shaft (Fig. 3), and that the disk-shaped rotary blade is disposed on a disk shaft (Fig. 3).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 2, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potsch et al. in view of Falk et al. (3,292,478) (see page 8 of this Office action for examiner added reference numerals). Potsch et al. discloses the invention including a drum-shaped rotary blade (53), a disk shaped rotary blade (68), that the rotary blade has a cutting edge (Fig. 9), a first beveled surface facing the drum-shaped rotary blade and progressively spaced from the drum-shaped rotary blade toward the cutting edge (68'), a second beveled surface facing the work piece and progressively spaced from the cutting edge away from the work piece (200), a first angle of the first beveled surface from the severance plane is set to a value which ranges from  $0.8^{\circ}$  to  $14^{\circ}$  (Fig. 9), that the cutting edge is spaced apart from a severance plane (68''), a means for rotating the drum-shaped blade in unison with the disk-shaped blade (Fig. 3), that the drum-shaped rotary blade is disposed on a drum shaft (Fig. 3), and that the disk-shaped rotary blade is disposed on a disk shaft (Fig. 3) but fails to disclose a first distance of the first beveled surface up from the cutting edge along the severance plane perpendicular to a surface of the work piece is set to a value which ranges from  $40\mu\text{m}$  to  $200\mu\text{m}$  (0.2mm) and that a second angle of the second beveled surface from the severance plane is set to a value which ranges from  $65^{\circ}$  to  $85^{\circ}$ . Falk et al. teaches a second angle of the second beveled surface from the severance plane is set to a value which ranges from  $65^{\circ}$  to  $85^{\circ}$  (The angles u and r plus the additional distance created by the  $1^{\circ}$  angle in Fig. 9 of Potsch et al.) and a first distance of the first beveled surface up from the cutting edge along the severance plane perpendicular to a surface of the work piece is set to a value  $630\mu\text{m}$  or 0.63mm. However, it would have

Art Unit: 3724

been obvious to have reduced the size of the blade from .63mm to .2mm to allow for a thinner work piece to be cut. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Potsch et al. with the first distance and second angle, as taught by Falk et al., to allow for specific sized work piece to receive a specific shaped cut.

5. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potsch et al. in view of Falk et al. as applied to claims 1 and 2 above, and further in view of DeTorre (5,423,240). Potsch et al. and Falk et al. disclose the invention including that the disk-shaped blade has a first clearance surface contiguous to the first beveled surface (201 on page 8 of this Office action) but fails to disclose that the angle of the first clearance surface from the severance plane is set to a value which ranges from 2° to 5° and that the disk-shaped blade is made of cemented carbide. DeTorre teaches an angle of the first clearance surface from the severance plane that is set to a value which ranges from 2° to 5° (Column 3, lines 34-35 and Fig. 2) and that the disk-shaped blade is made of cemented carbide (Column 1, lines 34-41 and column 4, lines 23-29).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Potsch et al. in view of Falk et al. with the first clearance angle and that the blade is made from cemented carbide, as taught by DeTorre, to prevent the first clearance surface from interfering with the cut work piece and to provide the blade with increased hardness.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Potsch et al. in view of Falk et al. as applied to claims 1 and 2 above, and further in view of Munier

Art Unit: 3724

et al. (5,365,821). Potsch et al. and Falk et al. disclose the invention including that the disk-shaped blade has a second clearance surface contiguous to the second beveled surface (203 on page 8 of this Office action) but fail to disclose that the angle of the second clearance surface from the severance plane is set to a value which ranges from 20° to 45°. Munier et al. teaches an angle of the second clearance surface from the severance plane that is set to a value which ranges from 20° to 45° (Column 3 lines 39-44). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Potsch et al. in view of Falk et al. with the second clearance angle, as taught by Munier et al., to prevent the second clearance surface from interfering with the cut work piece.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Potsch et al. in view of Falk et al. further in view of Munier et al. as applied to claims 1, 2, and 4 above, and even further in view of Paavola (4,972,750). Potsch et al., Falk et al., and Munier et al. disclose the invention including that the second beveled surface and the second clearance surface are joined at a junction (204 on page 8 of this Office action) but fail to disclose that the distance from the junction to the severance plane is set to a value which ranges from 0.2mm to 0.8mm. Paavola teaches a distance (14) from the junction to the severance plane is set to a value which ranges from 0.2mm to 0.8mm (Column 2, lines 30-33). Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Potsch et al. in view of Falk et al. further in view of Munier et al. with the distance, as taught by Paavola, to allow for a specific cutting surface for a specific type of cut.

Art Unit: 3724

8. Claims 6 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Potsch et al. in view of Takagi. Potsch et al. discloses the invention including a drum-shaped rotary blade (53), a disk shaped rotary blade (68), that the rotary blade has a cutting edge (Fig. 9), a first beveled surface facing the drum-shaped rotary blade and progressively spaced from the drum-shaped rotary blade toward the cutting edge (68'), a second beveled surface facing the work piece and progressively spaced from the cutting edge away from the work piece (200) but fails to disclose that the disk-shaped rotary blade has irregularities along a circumference of the blade, that the irregularities have an irregularity quantity set to a value which ranges from  $0.5\mu\text{m}$  to  $5\mu\text{m}$ , that the irregularities have one of saw-tooth shaped and undulating shape, and that the irregularity quantity being a distance from a bottom to a top of one of the irregularities. Takagi teaches that it is old and well known that blades have irregularities in saw-tooth and undulating shapes (Column 2, lines 27-28). The examiner takes official notice that it is old and well know to make a surface as smooth as possible, therefor, it would have been obvious to employ manufacturing techniques to obtain a smoothness of the order claimed. Therefore, it would have been obvious to one of ordinary skill in the art, at the time of the invention, to have provided Potsch et al. with irregularities, as taught by Takagi, to provide the desired smoothness of the cutting apparatus.

### ***Response to Arguments***

9. Applicant's arguments with respect to claims 1-7 and 15-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Art Unit: 3724

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Prone whose telephone number is 703-605-4287.

The examiner can normally be reached on 7:30-5:00, Mon - (every other) Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allan N. Shoap can be reached on 703-308-1082. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JP  
March 11, 2005



Allan N. Shoap  
Supervisory Patent Examiner  
Group 3700



